Patent Claims

1. A method for transmission of data packets through a network, where said packets with a maximum allowable delay (mad), an average packet rate (apr) and an average packet size (aps) are aggregated in a node of the network to a burst and the burst is transmitted with an average number of packets and a link speed (ls) into the network and passes at least a switch, with a number of channels (noc), a switching time (ts) and a given burst blocking probability (bbp), where said average number of packets per burst (ppb) is between an upper and a lower limit,
where the upper limit is determined by plus/minus twenty percent of the sum of the value one plus a product of the maximum allowable delay (mad), the average packet rate (apr) and the value two,
and the lower limit is determined by plus/minus twenty percent of a quotient, where the dividend is the switching time (ts), and the divisor is a difference, where the minuend is a quotient of the result of the inverse Erlang B formula for the burst blocking probability (bbp) and the number of channels (noc) divided by the average packet rate (apr) and the subtrahend is a quotient of the average packet size (aps) divided by the link speed (ls).

2. A method for transmission of data packets through a network, where said packets with a maximum allowable delay (mad) and an average packet rate (apr) are aggregated in a node of the network to a burst and the burst is transmitted with a number of packets, where said number of packets per burst (ppb) is determined by the result of plus/minus twenty percent of the sum of the value one plus a product of the maximum allowable delay (mad), the average packet rate (apr) and the value two.

3. Method as claimed in claim 1,

where the optimum average number of packets per burst (ppb) is around plus/minus twenty percent of the value determined for the upper limit.

4. Method as claimed in claim 1, 2 or 3, characterized in that, the packets have an average burst size (abs) which is determined by the product of an average packet size (aps) of the incoming packets and the number of packets per burst (ppb) as determined in claim 1, 2 or 3.

5. Method as claimed in claims 4, characterized in that, during the aggregation of incoming packets to a burst an effective burst size is compared to a value and if the effective burst size is equal or exceeds this value the aggregated burst is sent and the incoming packets are aggregated to a new burst, where said value is in the range between plus/minus 20 percent of the average burst size (abs) as determined in claim 4.

6. Method as claimed in claims 4 or 5, characterized in that, the incoming packets are aggregated in a buffer to a bursts, where the minimum size of the buffer is determined by the product of the average packet size (aps) of the incoming packets and the difference of the number of packets per burst (ppb) and a first constant (d), which is between 0 and 5, where 1 is the preferred value.

7. Method as claimed in claim 6, characterized in that, the maximum size of the buffer is determined by the product of two terms, where the first term is the average packet size (aps)

and the second term is a sum of the number of packets per burst (ppb) and a second constant (e), which is between 0 and 5, where 1 is the preferred value.

8. Method as claimed in one of claims 1 to 4, characterized in that, every time an incoming packet is stored a random binary digit, with a probability for the first and the second value of the binary digit, is generated and compared with the first value of the binary digit and, if equal, the stored packets are sent as a burst, where the probability for the first value is determined by the reciprocal value of the number of packets per burst (ppb) as determined in claim 1, 2 or 3.

9. Method as claimed in one of claims 1 to 8, characterized in that, an average burst rate (abr) is determined by the quotient of the average packet rate (apr) and the number of packets per burst (ppb) as determined in claim 1, 2 or 3.

10. Method as claimed in one of claims 1 to 8, characterized in that, an average burst rate (abr) is determined by the reciprocal value of the sum of the inverse average packet rate (apr) and two times the maximum allowable delay (mad) for a packet.

11. Method as claimed in claim 9 or 10, characterized in that, concerning a switching time (ts), a burst duration time (tb), a limit of the burst blocking probability (bbp) and a given number of channels (noc) in a switch of the network the average burst rate (abr) satisfies the condition that the quotient of the result of the inverse Erlang B formula for the limit of the burst blocking probability (bbp) and the number of channels (noc) divided by the sum of the switching time (ts) and the burst duration time (tb) is equal or greater

than the average burst rate (abr) as determined in claim 8 or 9.

12. The method as claimed in one of claims 1 to 11, characterized in that, IP packets are used as incoming packets.

13. The method as claimed in one of claims 1 to 12, characterized in that, the network is formed as an Optical Burst Switched network.

14. The method as claimed in one of claims 1 to 13, characterized in that, the node is an edge node of the network.

15. The method as claimed in claim 14, characterized in that, in the edge node the burst is transformed and sent as an optical burst into the Optical Burst Switched network.